

Question 1

- (a) A new company that is in the business of developing mobile apps has a highly skilled and experienced development team and a limited marketing budget. In the mobile app market there is a growing demand for mental health applications. A major competitor is launching a product that aligns with the demand during the next week.

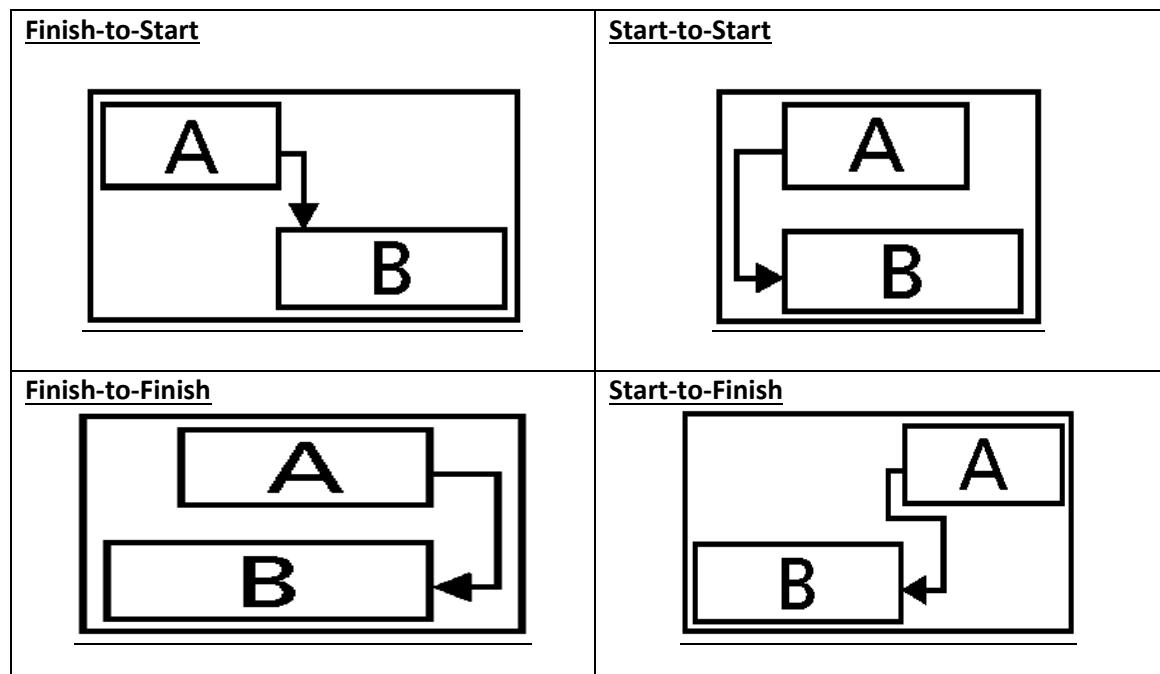
Considering the above scenario state whether the aspects given below are, a strength (S), weakness (W), Opportunity (O), or a Threat (T) by placing the relevant letter in the space provided. E.g. if the given aspect is a weakness then W has to be placed in the space provided.

[6 x 5 = 30 marks]

Highly skilled and experienced development team	S
Limited marketing budget	W
Growing demand for mental health applications in the mobile app segment	O
Potential for strategic partnership with mental health professionals, influences, and/or non-profit organizations.	O
Highly saturated and competitive nature of the mental health mobile application market	T
Competitors upcoming product that aligns with the demand	T

- (b) Consider two tasks A and B and draw the task dependencies given below.

[5 x 4 = 20 marks]



Question 2

- (a) You are managing a software development project with a planned budget of 1,000,000 LKR and a planned duration of six (6) months. During risk assessment, you identify a critical risk related to integrating a new third-party API, which may cause delays and additional costs.
- **Risk:** The integration might fail, causing a two-month delay and an additional cost of 300,000 LKR.
 - **Probability of failure:** 30%
 - **If the integration succeeds:** No additional cost or delay.
 - **You have an option to invest 50,000 LKR now in extra testing to reduce the failure probability to 10%.**
- (i) Using the decision tree method, calculate the expected monetary value (EMV) for both options available to the project manager. **Note:** Drawing the tree is required before computation of EMV.

[25 marks]

Root

| -> Without Testing (cost 0)

| -> Success (70%): Cost = 1,000,000

| -> Failure (30%): Cost = 1,300,000

| -> With Testing (cost 50,000)

| -> Success (90%): Cost = 1,050,000

| -> Failure (10%): Cost = 1,350,000

- EMV without testing:
$$\text{EMV} = (0.70 \times 1,000,000) + (0.30 \times 1,300,000)$$
$$\text{EMV} = 700,000 + 390,000 = 1,090,000 \text{ LKR}$$
- EMV with testing:
$$\text{EMV} = 50,000 \text{ (testing cost)} + (0.90 \times 1,000,000) + (0.10 \times 1,300,000)$$

- (ii) Based on the calculation of EMV, what option would you take as the project manager? Justify your answer.

[05 marks]

The EMV with extra testing (1,080,000 LKR) is lower than the EMV without testing (1,090,000 LKR), meaning the expected cost is less when investing in extra testing.

Although extra testing adds a fixed upfront cost of 50,000 LKR, it significantly reduces the probability of failure from 30% to 10%, decreasing the risk of costly overruns and delays.

Therefore, the project manager should choose to invest in the extra testing, as it reduces the overall expected project cost.

- (b) For each of the following scenarios identify the most appropriate type of contract to use.

Note: The full name of the contract type is required to obtain the full marks and shorten form will only carry half marks.

[4 x 5 = 20 marks]

The client wants a fixed scope software module delivered within a fixed timeline and budget. The requirements are stable, and the client prefers to transfer cost risk to the vendor	Firm-Fixed-Price (FFP)
You are developing a prototype with uncertain requirements. The client is willing to pay for actual effort and materials and expects flexibility as the project evolves.	Time and Materials (T&M)
The client wants to provide incentives for high vendor performance based on quality and timeliness, with payment partially tied to subjective evaluation criteria.	Cost-Plus-Award Fee (CPAF)
A government agency requires a contract where the vendor is reimbursed for actual costs plus a fixed percentage fee, regardless of project performance or results.	Cost-Plus-Percentage of Cost (CPPC)
A client expects a well-defined project with strict cost control and minimal client involvement once the contract is signed.	Firm-Fixed-Price (FFP)